

# Problems resulting from the discontinuous distribution of *Muscicapa latirostris* Raffles<sup>1</sup>

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What directed our interest to *Muscicapa latirostris* was initially the fact of its being a winter visitor in tropical South-East Asia, arriving there from its Palaearctic breeding range in September or October after a long journey and leaving again in April or early May. In this regard the migratory movements of the species agree fairly well with those of some other Palaearctic passerines like *Lanius tigrinus*, *Lanius cristatus*, *Pericrocotus divaricatus* and *Locustella certhiola*, which all have recently been shown by the present authors to have two complete moults, a postnuptial one on breeding grounds and a prenuptial one in their distant winter quarters. This similarity of migration patterns induced us to study the moult of *Muscicapa latirostris* in the hope to discover an additional case of 'two complete moults each year'. But our expectation did not come true.

Witherby (1938), who believed *Muscicapa latirostris* to nest in the Palaearctic region only, published his opinion about the plumage changes of this flycatcher as follows: 'Winter—This plumage is acquired by a moult of the body feathers in July-August, but wings, wing-coverts and tail are not moulted in autumn. Summer—From February to May a complete moult takes place.' This picture proved on examination to be entirely wrong. In fact the species undergoes a complete postnuptial moult on its Palaearctic breeding grounds in July/August/September, and in winter quarters does not moult at all! Young birds retain the first generation of flight-feathers for about one year. Their partial moult from the spotted nestling plumage to the adult dress begins probably, as in *Muscicapa striata* (Heinroth 1926, p. 53), at the bird's age of nearly 27 days and lasts about one month. Freshly moulted first-year birds are distinguished from fully adults by pale-cinnamon tips of the greater secondary coverts, retained from the nestling plumage. Thus our results conform to those of Whistler's (in Ali 1938, p. 299).

The postnuptial moult lasts about 60 days. In the sequence of feather replacement this species agrees with *Passer domesticus* (Zeidler 1966). For details see the Appendix.

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<sup>1</sup> Received August 1972.

Besides the highly migratory Northern populations there are smaller, scattered populations and single pairs that nest in the tropics. Individuals remaining in the tropics all through the Northern summer have been recorded from various countries, chiefly from India, but also from Malaya, Thailand and Burma (Deignan 1957). The first author to prove nesting in India seems to have been B. Shelley (1894), who recorded it in the Vindhya Range near Mhow in June. His note has been quoted in full by Stuart Baker (1906), who added a second case. Hartert (1910, p. 478) however considered both instances doubtful and suspected a confusion with *Muscicapa sibirica fuliginosa* (= *cacabata*). Even in 1934 he had not changed his point of view, disbelieving in the many additional records since published by Stuart Baker (1924, p. 249 and 1933, p. 216). His negative attitude was not fully shared by Whistler (in Ali 1933, p. 388) though he admitted: 'More information is needed about the breeding of this flycatcher in India.'

Such additional information will soon be given in Vol. 7 of Ali's and Ripley's monumental HANDBOOK. Dr Dillon Ripley kindly sent us in advance a photocopy of the text on *Muscicapa latirostris*. From this one learns that the species is:

- (a) a fairly common summer visitor to the foothills of the Himalayas
- (b) a common breeder in the Vindhya Range (hills round Sehore and Mhow)
- (c) a scarce breeder in the southern parts of the Western Ghats, probably also in the Eastern Ghats and in the Biligirirangan Hills (Mysore).

The breeding population of India is migratory in the Himalayas and the Vindhya Range, where it appears on its breeding grounds in April and departs in September, while in the Ghats there is a resident population. *Muscicapa latirostris* is a winter visitor to the foothills of Dehra Dun from October to February. It also winters in Ceylon, where it is most common from October to March (loc. cit.).

Since the highly migratory Palaearctic and the Indian populations cannot be distinguished by colour or measurements (Vaurie 1954) it remains uncertain to what extent Palaearctic immigrants invade Indian territory in autumn to stay there for the winter. Ali & Ripley apparently consider this influx to be negligible. They regard the main winter quarters of the palaearctic population to be 'South-east Asia, the Philippines and Indonesia'. But the species is almost unknown in the Philippines and to South-east Asia should be added Burma, where it is very common after 24 September (Oates 1883) and whence numerous specimens are likely to extend their migration into India.

What stimulated our interest in this species and its most unusual distribution was the question whether the two widely separated popula-

tions, the Palaearctic and the Indian, agreed with regard to season of moult. Considering the differences of day length, climatic factors and length of migration, a notable difference in the timing of this cyclic process could be expected.

To our surprise the difference proved to be trifling or even non-existent.

Due to the absence of migration and the continuous presence of flying insects, breeding may start in the resident population of South India as early as in April, while in North India it does not begin before May (Ali & Ripley). In Japan, where this species arrives about 15 April, the second half of May has been recorded as the starting-point for nidification (Jahn 1942).

Consequently, the complete postnuptial moult may begin in South India at a somewhat earlier date than in the foothills of the Himalayas and in Hondo (see the Appendix).

*Muscicapa latirostris*, known to be a widespread and locally common breeding bird in India, has also been recorded in summer from several localities in South-East Asia (Deignan 1957), but convincing proof of its breeding there remains very scarce. Such proof exists for:

**Southern Burma:** Oates collected at Kyeik-Padein (near Pegu) an adult on 21 July and a 'quite young bird' on 30 July (Oates 1883, p. 277). The adult specimen was considered by Deignan (1957) to belong to his 'new species' *Muscicapa williamsoni* (about which see Vaurie in Mayr 1971).

**Thailand:** Occasional nesting is testified by a skin in the Field Museum of Natural History (Reg. No. 81181), collected 15 Aug. 1921 at Ban Hia (13°30'N, 100°35'E), south of Bangkok, in the vicinity of Paknam, according to M. Traylor (*in litt.*), who added: 'The specimen is about 95% in first winter plumage, with scattered juvenal (=nestling) feathers on crown and back. Below, the brownish breast band is noticeably streaked. It fits very closely Deignan's description of *williamsoni*, although I find it hard to believe that there are two resident species, *M. latirostris* and *M. williamsoni*, in Southern Asia.'

**Western China:** *Muscicapa latirostris* had generally been supposed to occur in China on migration only. We were therefore much surprised to learn that Dr George Watson, while perusing the material of the U.S. National Museum, had found 4 skins of this Flycatcher in primary moult collected in the mountains of Yunnan and Szechuan by S. F. Rock and David C. Graham respectively (see the Appendix).

Proof is lacking, though nesting has been suspected in:

**Malaya:** 'It is possible that a few pairs remain throughout the year and breed in the mountains' (Robinson 1928, p. 130). A skin from the state of Selangor, dated 17 August, has been attributed by Deignan to his 'species' *williamsoni*.

**Annam** : ' Possibly there may be a resident form in the mountains of South Annam ' (Riley 1938, p. 446, basing this remark on a specimen collected there on 10 May 1918).

The extension of the breeding range of this migratory bird from the temperate region of Japan, Eastern Siberia and neighbouring countries (see Vaurie 1959) to the hills of India without appreciable effect on morphology or physiology of the settlers may have been initiated by single pairs which, instead of returning in spring, remained in winter quarters for reproduction. Owing to some physiological preadaptation of the species this may have been frequently repeated by single birds up to the present time, since in autumn there is (probably) a constant influx of Palaearctic migrants belonging to *Muscicapa latirostris*, and the 'swamping effect' (Mayr 1942, pp. 244-5) prevents differentiation of populations which remain isolated during the summer months only.

What may be the result if isolation is complete and lasts for a long period is shown by *Muscicapa (latirostris) segregata* Siebers. This resident species (or rather semispecies) is confined to Sumba, one of the Lesser Sunda Islands. It differs constantly from *M. latirostris* by longer bill and wing shape (Siebers 1928 and Rensch 1931). The length of primaries 8 and 9 (from within) is reduced relatively to primary 7, a frequent difference between migratory and resident populations of the same species (see Mayr 1963, p. 324 : 'wing rule'). The colour, however, remained unchanged. Not so the season of breeding and, consequently, of moult. Specimens in the Zoological Museum of Berlin prove a great difference relative to Palaearctic and Indian birds, No. 30.1691 is in complete nestling plumage on 25 March 1925<sup>1</sup>, while two other young birds (Nos. 30.1692 and 30.1693), dated 28 and 30 March respectively, have already undergone the post-nestling moult, as shown by the cinnamon-coloured tips of the greater secondary coverts which signify first-year birds. This suggests the breeding of *segregata* about January or February—probably in adaptation to the local annual rhythm of ample food supply.

Obviously *M. segregata* is a relic from a quaternary period when Palaearctic migrants used to penetrate farther into the Malay Archipelago than nowadays, even reaching Australia, as *Botaurus stellaris*, *Fulica atra*, *Porzana pusilla* and *Podiceps cristatus*. Some of these migrants settled there and became the ancestors of Australian subspecies (Stresemann 1939, p. 417).

*Muscicapa segregata* fits in this group of colonists. Its ancestor *M. latirostris* does no longer reach the Island of Sumba in the migratory period. In present times it goes no farther east than Java, and there is no record known from the intervening islands of Bali, Lombok, Sum-

<sup>1</sup> According to Siebers (1928) and Rensch (1931, p. 379), Dr Dammerman in addition collected two other skins in nestling plumage, dated 22 and 28 March 1925.

bawa and Flores. Thus the isolation of the Sumba population has long since become perfect.

#### ACKNOWLEDGEMENTS

Our thanks are due to S. Dillon Ripley and George E. Watson for important informations, to G. Diesselhorst (München), R. Piechocki (Halle a. S.) and to the authorities of the Bombay Natural History Society for the loan of specimens in moult; and to Melvin A. Traylor (Chicago) for his untiring efforts to promote our studies.

#### SUMMARY

*Muscicapa latirostris* moults the entire plumage on breeding territory. The innermost primaries are replaced by new ones soon after (or even before?) the end of parental care. The birds nesting in India do not differ appreciably from the highly migratory Palaearctic birds, either in morphology and breeding season or in timing of moult. It is suggested that this lack of differentiation may be due to the swamping effect which results from incomplete isolation of the Indian population.

What may be the effect if isolation is complete is shown by *Muscicapa (latirostris) segregata*, a descendant of *M. latirostris latirostris*, confined to the island of Sumba. It agrees with the latter in colour, but differs by having a blunter wing-tip and by the season of reproduction and moulting.

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## APPENDIX

### Postnuptial moult (complete)

#### A. PALAEARCTIC REGION

1. 10 July 1956, ♀, Manchuria : Little Khingan—Piechocki No. 37  
Pr. 1 in sheath gr. 1 cm, 2 in sheath gr. 2 cm, rest old. **Sec. tail, body old**, no moult.
2. 14 July 1956, ♀, Manchuria : Little Khingan—Piechocki No. 56  
Pr. 1 and 2 in sheath, rest old. **Sec. tail, body old**, no moult.
3. 15 August 1900, Hokkaido : Nemuro—München No. A 692  
Pr. 1 and 2 in sheath, 3 lacking, rest old. **Sec. 8 lacking, rest old. Tail old. Body many germs on throat and pteryla gastraei.**
4. 15 August 1900, Hokkaido : Nemuro—München No. A 682  
Pr. 1 to 4 new, 5 almost full grown, 6 gr. 3/4, 7 in sheath 1 cm, 8 to 10 old. **Sec. 1 gr. 4/5, 2 in sheath 2 mm, 3 to 6 old, 7 gr. 1/2, 8 new, 9 lacking. Tail four rectrices gr., 5 and 6 old. Body moult almost completed, gr. feathers only on head and throat.**
5. 27 August 1900, Kurilas : Iturup—München No. A 695  
Pr. 1 to 4 new, 5 almost full grown, 6 gr. 3/4, 7 gr. 1/3, 8 out, 9 and 10 old. **Sec. 1 and 2 gr. 3 to 6 old, 7 gr. 1/2, 8 and 9 new. Tail all reocr. gr. 2/3 to 1/2.**
6. 10 September 1900, Kurilas : Iturup—München No. A 697.  
Pr. 1 to 6 new, 7 with rest of sheath, 8 gr. lacking 1 cm, 9 gr. 3/4, 10 gr. **Sec. 1 and 3 new, 4 gr. lacking 1 cm, 5 gr. 1/2 cm shorter than 4, 6 gr. 3 mm shorter than 4, 7 to 9 new (7 with rest of sheath). Tail new. Body everywhere some gr. feathers, otherwise new.**

#### B. WESTERN CHINA

All information communicated by Dr G. E. Watson

7. 28 June 1929, ♀, Szechuan : Mupin—Washington No. 313582—All feathers old.

8. 31 July 1928, ♀, Szechuan : Ningyen Fu 6000 ft.—Washington No. 310735  
Pr. 1 new, 2 almost full gr., 3 gr. 3/4, 4 gr. 1/4, 5 to 10 old. Tail all old.
9. 22 Aug. 1923, ♀, Yunnan : Lichiang Plain 8200 ft.—Washington No. 296396  
Pr. 1 to 7 new, 8 gr. 3/4, 9 gr. 1/2, 10 out. Tail all new.

## C. INDIA

10. 20 July 1934, ♂, Mysore : Biligirirangan Hills—Coll. Ripley No. 1833—Has started primary moult.
11. 23 Aug. 1938, ♀, Indore St. : Bijwar 1450 ft.—Bombay No. 4156  
Pr. 1 to 3 new, 4 and 5 still gr., 6 gr. 2/3, 7 pin 1 mm, 8 to 10 old. Sec. 1 still gr., 2 gr. 1/3, 3 to 6 old, 7 gr. 2/3, 8 and 9 new. Tail 1 new, 2 to 6 gr. in centrifugal sequence (2 almost full-gr., 6 gr. 1/2). Body all feathers new or gr., still many in pin.
12. 24 Aug. 1938, ♂, Indore St. : Bijwar 1450 ft.—B.M. 1949. Whi. 1.10703  
Pr. 1 to 5 new, 6 still gr., 7 gr. 3/4. 8 gr. 1/2, 9 pin, 10 out. Sec. 1 and 2 new, 3 still gr., 4 gr. 2/3, 5 pin 1 cm, 6 pin 3/4 cm, 7 to 9 new. Tail 1 to 5 new, 6 still gr. Body moult completed.
13. 24 Aug. 1924, ♂, Baghat St. (NW Himalaya) : Koti 3500 ft.—Bombay No. 16916  
Pr. 1 to 5 new, 6 and 7 still gr., 8 gr. 3/4, 9 gr. 1/3, 10 old. Sec. 1 new, 2 still gr., 3 gr. 1/2, 4 pin 1 cm, 5 and 6 old, 7 still gr., 8 and 9 new. Tail 1 to 3 new, 4 still gr., 5 gr. lacking 1 cm, 6 gr. 2/3. Body some feathers still gr.
14. 6 Sept. 1938, ♂, Dhar St. : Gujri 750-1000 ft.—Bombay No. 4155  
Pr. 1 to 6 new, 7 still gr., 8 gr. 1/2, 9 gr. 1/3, 10 out. Sec. 1 and 2 new, 3 gr. 1/2, 4 pin 1 1/2 cm, 5 pin 3 mm, 6 out, 7 to 9 new. Tail 1 to 5 new, 6 still gr. Body moult completed.